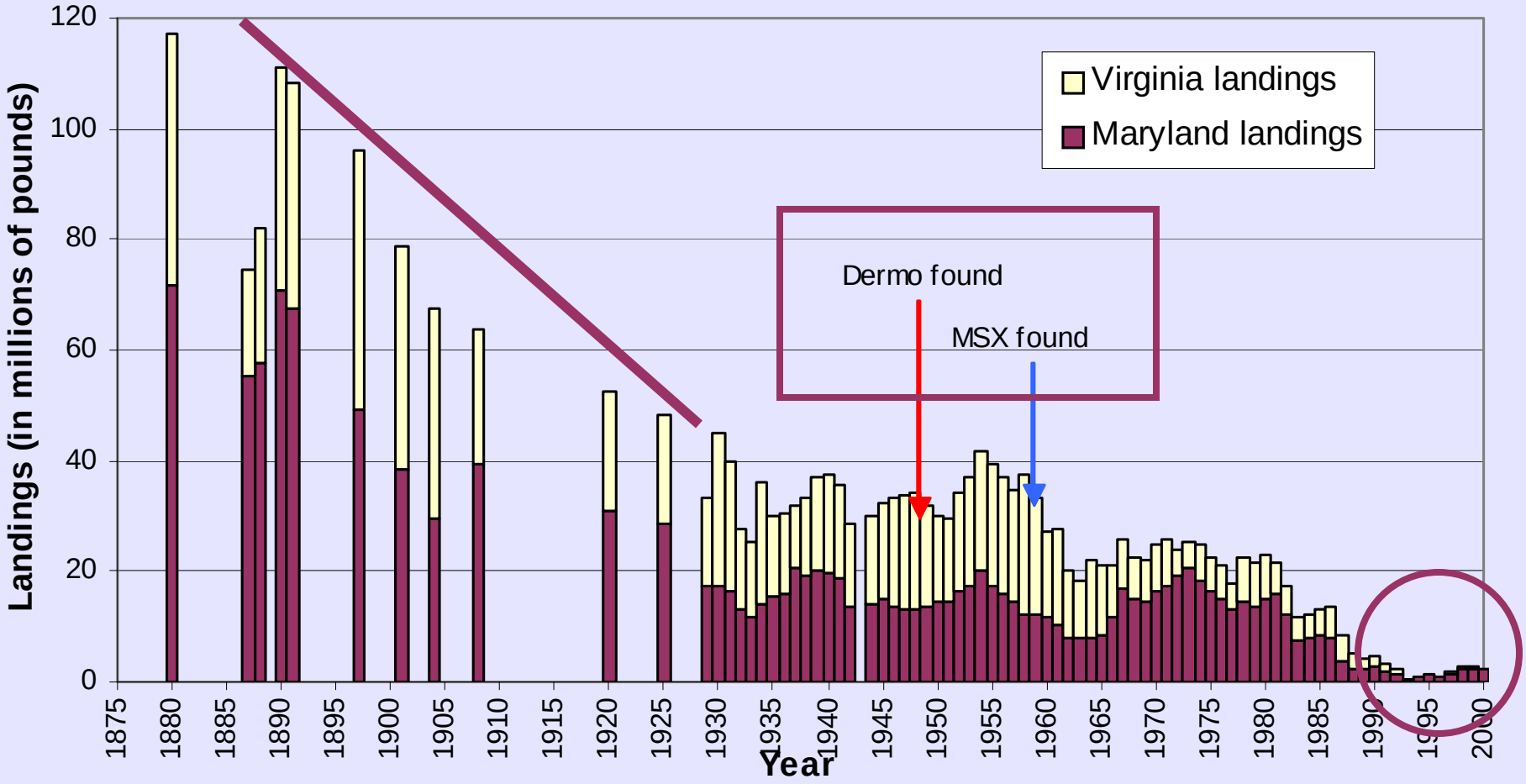
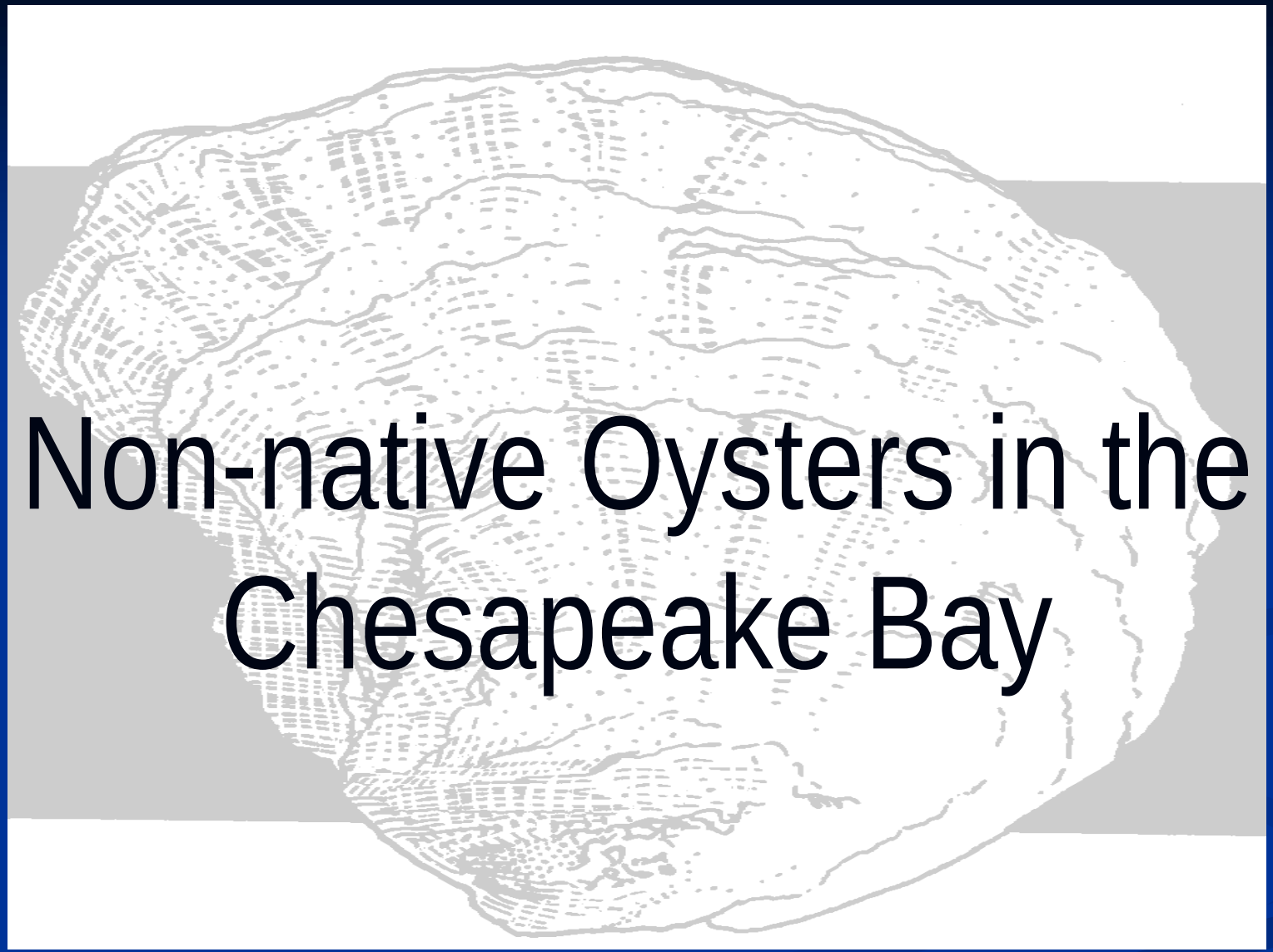
History of Commercial Oyster Landings





Non-native Oysters in the Chesapeake Bay

THE NATIONAL ACADEMIES

Advisers to the Nation on Science, Engineering, and Medicine

Management Option #1

- The long-term risk of an **outright prohibition on use of non-native oysters** (either for controlled aquaculture or for deliberate release into open waters) depends on the potential success of restoration programs for the native Eastern oyster.

Management Option #2

- **Contained aquaculture of triploid *C. ariakensis*** provides an opportunity to research the potential effects of extensive triploid-based aquaculture or introduction of reproductive non-native oysters on the ecology of the bay and offers some additional economic opportunities for the oyster industry and the watermen.

Management Option #3

- It is not possible to predict if a **controlled introduction of reproductive *C. ariakensis*** will improve, further degrade, or have no impact on either the oyster fishery or the ecology of the Chesapeake Bay.

Choosing Among the Options

- Option 2 should be considered a short-term or interim action that provides an opportunity for researchers to obtain critical biological and ecological information on the non-native oyster required for risk assessment. This option also allows for more management flexibility in the future depending on the status of the native oyster and the success of restoration efforts.
- Stringent regulations will be necessary to ensure that aquaculture of triploid *C. ariakensis* does not result in the establishment of a self-reproducing population in the Chesapeake Bay region.

Myths

- **Time:** That *C. ariakensis* represents a quick solution
- **Water Quality:** That *C. ariakensis* will dramatically affect water quality in the Bay
- **Restoration Efforts:** That efforts to restore the native oyster have failed

Conclusion

- The existing regulatory and institutional framework is **not adequate**

Ongoing EIS

- Purpose: Economic recovery of the fishery
- Additional Interests: WQ & Reef Habitat
- Native and Non-Native Alternatives
- Ecological Risk Assessment
  - follow NRC research recommendations
  - NRC report is the Tier 1 risk assessment
- Pressure on the timeline

Ongoing Field Trials

- 800,000 “Triploids” in Virginia
  - Estimated 400 diploids included, now maturing
  - Several thousand diploid progeny possible
  - Permitted through 6/30/04, extension pending
  - Risk minimization needed to prevent 2 adults/m2
- Small-scale in-water research in MD

Risk Assessment

- P ($\geq$ 2 Adults / m^2)
- Mostly *C. virginica* parameters
- Greatest uncertainty:
  - size-specific fecundity varies greatly in the Genus
  - fertilization efficiency from another Phylum
  - larval dispersal may be non-random

Risk Management

- Keep the genie in the bottle
- Precautionary principle
- Avoid setting a specific precedent
- Reduce numbers, density, size of oysters
- Increase accountability, recovery provisions
- Adaptive risk management

Issues for EPA

- CWA jurisdiction - 404 and/or 402
  - 404: cultch as fill
  - 402: non-native species as a pollutant; point source
- How much science is enough?
- How much risk is too much?
- Long-term restoration in a short-term world